

# Clean Energy Wisconsin

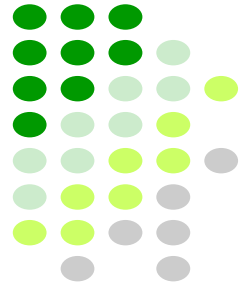
## A Plan for Energy Independence



### Governor Doyle's Plan to:

- Promote an Affordable, Renewable, and Diverse Energy Supply
- Target Investments in Job Creation and New Business Opportunities
  - Improve Our Environment

Spring 2008



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Spring 2008

Dear Fellow Citizens,

Today, the rising cost of energy is a great concern for many families in Wisconsin. From the supermarket to the gas pump, Wisconsin families are feeling the squeeze of high energy prices. People and businesses are also feeling pinched by rising prices and an insecure energy and economic future.

The political and global effects of our energy use are also at the front of many citizen's minds. From \$4 a gallon gasoline to wars in the Middle East and global warming, there is no doubt that there are challenging energy times ahead.

In Wisconsin, we are taking the lead to not only address these challenges—but to find opportunities for innovation and growth in them as well.

From our farm fields to our factories, Wisconsin is well-positioned to take advantage of the resources we have to advance green technology, start new green businesses, and protect the environment.

We are doing this by investing in renewable energy, creating green jobs of the future, striving for the gold standard in energy efficiency, and partnering with communities across the state.

Clean Energy Wisconsin is a comprehensive strategy to strengthen Wisconsin's energy future. The initiatives will provide a clear direction for the businesses, people, and communities that will help Wisconsin become the Saudi Arabia of renewable fuels.

I look forward to working together as we invest in our future health and prosperity, and embark on a clean energy future.

Sincerely,



Jim Doyle  
Governor

## Goals: Energy Independence

In 2006, Governor Doyle and industrial, environmental, and scientific leaders set strategic goals for Wisconsin to secure a clean energy future. These goals are:

- **25 by 25** - Generate 25 percent of our electricity and 25 percent of our transportation fuel from renewable fuels by 2025. This goal will be accomplished through increasing production of renewable fuels and power, and improving the deployment of energy-efficient technologies.
- **10 percent of Renewables Market** - Capture 10 percent of the market share for the production of renewable energy and bioproducts.
- **Research Leadership** - Become a national leader in groundbreaking research that will make alternative energies more affordable and available to all – and to turn those discoveries into new, high-paying jobs for Wisconsin workers.

Wisconsin has made great progress toward meeting these goals, but there is more to be done. Wisconsin must keep finding new ways to innovate and progress toward energy independence.

## Objectives

The next steps in reaching a clean energy future will require Wisconsin to make targeted investments, develop new energy supplies, and focus on climate stewardship.

### I. Promote an Affordable, Renewable, and Diverse Energy Supply

In 2006, Wisconsin citizens spent \$19.5 billion dollars on energy — and costs continue to rise. The cost of petroleum alone is increasing by more than a billion dollars a year. Currently, 3.5 percent of the motor fuel sold in Wisconsin is from renewable sources and an overwhelming 66 percent of the United States' petroleum is imported. There is tremendous potential for Wisconsin to keep energy spending in the state, and in doing so, drive new industry.

Wisconsin currently spends \$5.7 billion a year on electricity, and much of the fuel is purchased from other states. About 5 percent of Wisconsin electricity is generated from renewable sources, generating \$184 million a year for the economy. **Producing 25 percent of the state's electricity from renewable sources in Wisconsin would generate nearly \$1 billion for the Wisconsin economy.**

### II. Target Investments in Job Creation and New Business Opportunities

The renewable energy industry is estimated to become a multi-billion industry and Wisconsin has the farms, fields, forest and factories to be a leader in this market. **Capturing 10 percent of this market would generate billions each year for our economy and create nearly 20,000 new jobs.**

### III. Improve Our Environment

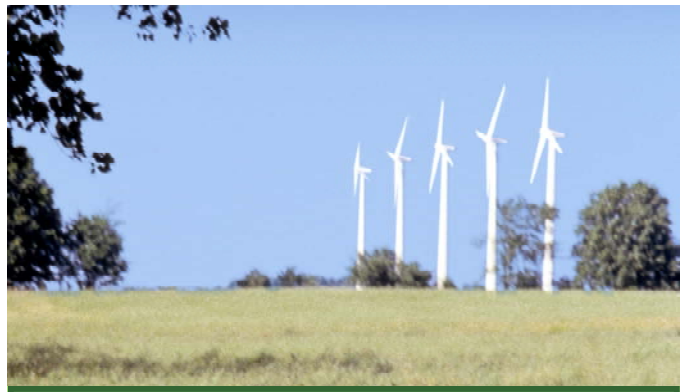
By emphasizing efficiency and promoting cost-saving alternative fuels, Wisconsin citizens and businesses can reduce greenhouse gas emissions, prevent water pollution, and reduce the state's overall impact on the environment.

## Areas of Investment



### Business and Job Development

Wisconsin has a clear competitive advantage in the development and production of renewable fuels. The state is currently the 7th largest producer of ethanol in the nation, and 13 million tons of excess biomass have the potential to power a thriving biofuel industry. Wisconsin's natural resources, researchers and innovative industries will create jobs of the future.



### Renewable Technology

Wisconsin will make renewable technology more affordable, innovative, and accessible. To develop the technologies of tomorrow, Wisconsin will pursue bold research and programs to develop new wind projects and biomass markets. The State of Wisconsin is leading efforts that are dramatically lowering energy consumption and overall costs.



### Improved Efficiency

A key to more secure energy is reducing Wisconsin's overall energy consumption. Energy efficient homes, transit, and businesses will substantially lower costs and Wisconsin's impact on the environment. The state is providing resources for residents and businesses to become more energy efficient. The state is also home to businesses focused on producing more energy-efficient products — from batteries to lights to heating systems.



### Energy Independent Communities

Communities across the state have the opportunity to meet Governor Doyle's challenge and pledge to work toward energy independence. In turn, the state's Office of Energy Independence will work with mayors, community leaders and businesses to help communities reach the 25 by 2025 goal, reduce energy use, and save taxpayers money.

# I. Promote an Affordable, Renewable, and Diverse Energy Supply

High energy costs are impacting Wisconsin families, business and industries. Wisconsin citizens spend over \$19.5 billion on energy and skyrocketing prices are costing consumers over \$1 billion more each year. Big oil companies continue to take advantage of the country's addiction to foreign oil by constantly raising prices at the pump while at the same time recording historic profits. Expanding renewable energy will break our addiction to foreign oil by expanding our state's energy supplies and helping keep our energy dollars in our local economies.

## *Providing Affordable Renewable Fuels*

The Office of Energy Independence reports that expanding the use of renewable fuels in our cars and trucks can save Wisconsin drivers millions of dollars annually. For example, increasing the ethanol content in our state's gasoline supply could save Wisconsin drivers over \$4.4 million in just one year. Additionally, **an average 2-car Wisconsin family could save over \$470 per year by using E85 in their flex fuel vehicles.**



The state's eight operating ethanol plants have the capacity to replace more than 11 million barrels of imported foreign oil per year. With the price of oil above \$100 per barrel, Wisconsin ethanol's impact on foreign oil imports alone is close to \$1 billion annually.

## *Reducing Dependence on Foreign Oil*

Governor Doyle has set Wisconsin on the right course to seize new economic opportunities and lead our nation's response to one of the most critical challenges of our time. Our addiction to foreign oil is compromising our national security and paralyzing our economy. The United States sends over a billion dollars a week in oil payments to the Middle East. Since January 2001, when President Bush took office, oil prices have increased 240 percent. In the last year alone, a barrel of oil has increased from \$60 to \$100 – almost 50 percent. This unprecedented increase in oil prices translates into unprecedented cost to consumers.

Our nation's dependence on foreign oil must end, but drilling our way out of this crisis is not the answer. We must invent and innovate our way to a cleaner, safer energy future. Since Governor Doyle took office, Wisconsin has increased production of ethanol from zero gallons to a half a billion gallons per year by providing a state production tax credit that totaled over \$8.5 million. This tax credit sunset in 2006 in response to the sustained profitability of ethanol plants.

## Diversifying Our Energy With Renewable Sources

In 2006, Governor Doyle set the goal to have 25 percent of energy from renewable sources by 2025. A diverse, renewable energy portfolio will provide cost savings and a more stable supply of energy.

To accomplish this target, utilities and industries will produce energy from a variety of new sources, from wind to solar to wood technologies.

### 10% Goal

Governor Doyle signed legislation in 2005 requiring 10 percent of the energy sales from Wisconsin electric utilities to come from renewable resources. As a result, **Wisconsin's renewable energy production will grow from 2,300 megawatt hours (MWh) to 7,700 MWh by 2015.** Renewable sources will include biofuels, hydro power, wood, solar, and wind.

### Farm and Forest Waste

Wisconsin leads all 50 states in production of renewable energy via anaerobic dairy digesters. **Wisconsin has 21 digesters on dairy farms with the generating capacity of 75 million kilowatts of electricity per year – more than any other state.** As we invest in digesters for small farms and position food processing for the next wave of digesters, Wisconsin can grow its biogas portfolio from 6.3 trillion BTUs to 28.24 BTUs.

### Wood Energy

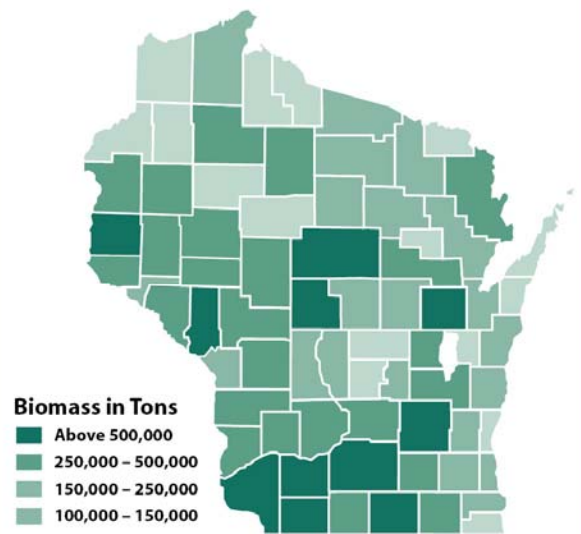
Wood is Wisconsin's competitive advantage as we seek to reduce the use of fossil fuels like petroleum and coal. In 2006, wood was the source for 60 percent of Wisconsin's renewable energy production.

### Growing more biomass for the future

*One acre of switchgrass provides enough heat for one home for a year*

- By 2015, Wisconsin will seek to produce 350,000 tons per year (70,000 acres/homes)
- By 2020, 1 million tons per year (200,000 acres/homes)
- By 2025, 3 million tons per year (600,000 acres/homes)

## Tons of Bio-Potential



### **Biomass includes:**

- Agriculture Residues (crops and animal manure)
- Wood Residues (forest, primary mill, secondary mill and urban wood)
- Municipal Discards (methane emissions from landfills and domestic water treatment)
- Dedicated Energy Crops

### Substituting for coal, growing the economy

- Wisconsin has an estimated 15 million tons of biomass (waste wood and plants) with a heat value of 8.12 million metric tons of coal.
- Wisconsin utilities import about 26,000,000 tons of coal per year.
- With coal at \$30 per ton, the state would generate \$244 million in value-added income to rural landowners if biomass is used as a coal substitute.

## Renewable Energy

### Wisconsin State Government Renewable Efforts

Governor Doyle challenged state government to promote renewable energy.

**Reduce Consumption** - Between 2005 and 2007, Wisconsin state agencies and universities reduced energy consumption by 7.2 percent per square foot. The state is expected to meet Governor Doyle's goal of 10 percent less energy use by 2008, and is making progress toward a 20 percent reduction by 2010.

**Renewable Electricity** - State government is also one of the largest purchasers of renewable energy in the nation, and Governor Doyle has set the goal that 20 percent of energy purchased be from renewable sources by 2011.

Over the next ten years, the State of Wisconsin will purchase 92,000 MWh of renewable electricity—enough renewable energy to light 15,600 homes each year.

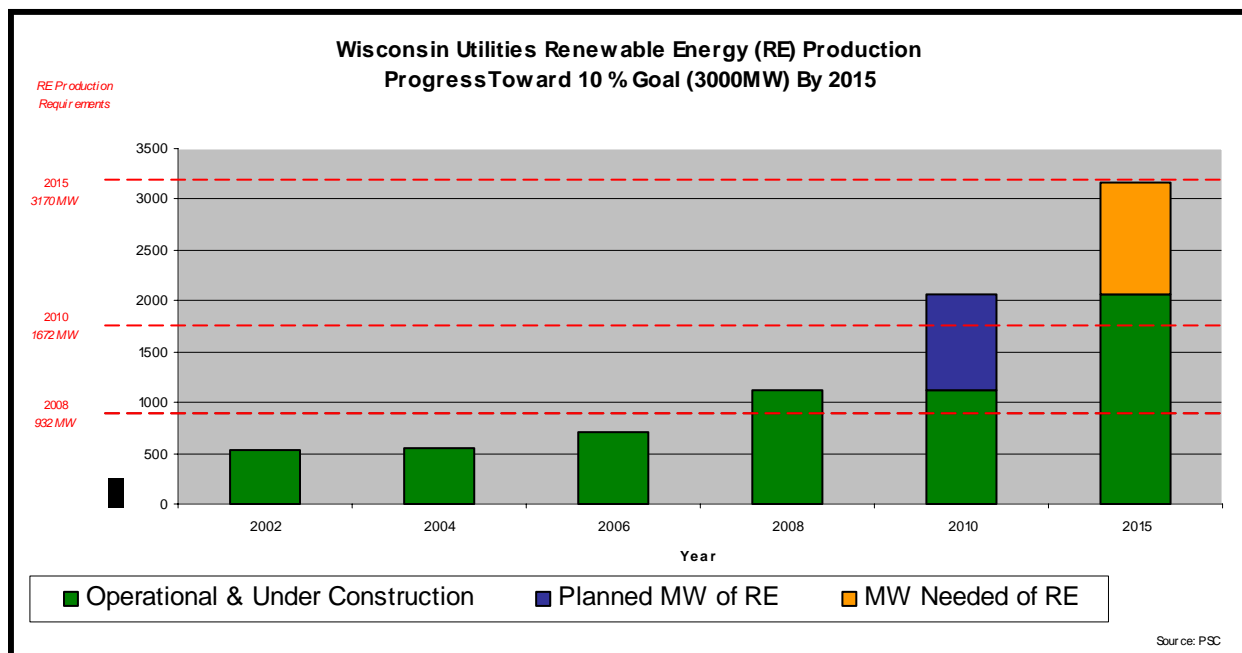
**Energy Efficient Buildings** - Governor Doyle also called for new state buildings to be 30 percent more energy efficient than required by code, and provided \$30 million for existing buildings to become more energy efficient. Early projects have been tremendously successful—for example, energy-efficient laundry facilities at the Veterans Home at King will save taxpayers \$70,000 each year in energy costs.

**Campuses Off the Grid** - In 2006, Governor Doyle set the goal for four University of Wisconsin campuses at UW River Falls, Stevens Point, Green Bay and Oshkosh to go completely off the grid. Progress is being made toward this goal.

**Renewable Fuel** - Last year, Wisconsin increased the number of E85 vehicles in its fleet to 1,750 and annual E85 consumption increased by 38 percent from 2006 to 2007.



Similarly, Wisconsin's biodiesel consumption increased tenfold in the state fleet—from over 6,000 gallons of B20 in 2006 to over 60,000 gallons in 2007.



## II. Target Investments in Job Creation and New Business Opportunities

Governor Doyle believes that the states that invest their resources in emerging renewable energy markets are those states that will be prospering into the future. Wisconsin has the farms, fields, forests and factories to be a leader in the renewable energy market. The emerging renewable energy market will provide new opportunities for Wisconsin manufacturers looking to expand product lines to provide equipment and supplies necessary to fuel a renewable economy. A strong renewable energy manufacturing sector will provide new job opportunities for middle-skilled workers such as carpenters, electricians and machinists.

The renewable energy industry is estimated to become a multi-billion dollar industry, and Wisconsin has the resources to be a leader in this market. Capturing 10 percent of this market would generate billions each year for Wisconsin and create nearly 20,000 new jobs.

### *Greener Pathways: Jobs and Workforce Development in the Clean Energy Economy*

According to a recent report by the Center on Wisconsin Strategies, a clean energy economy will be built and sustained by skilled workers in traditional occupations. Examples of clean energy jobs include electricians retrofitting buildings for energy efficiency, lab technicians ensuring quality control in ethanol plants, machinists crafting wind turbine components and technicians maintaining them.

### Jobs to Watch

Energy Efficiency	Wind	Biofuels
Energy and indoor air quality auditor	Wind energy technician	Plant technicians
Insulation workers	Mechanics	Plant operators
HVAC operations and maintenance technician	Sheet metal workers	Maintenance mechanics
Carpenters	Electricians	Boiler-makers
Plumbers	Machine tool operators	Steamfitters
Electricians		Plumbers
* Source: Center on Wisconsin Strategies, Workforce Alliance and Apollo Alliance report "Greener Pathways," March 2008. For full report visit <a href="http://www.cows.org">www.cows.org</a> .		

## Business Development

### Advanced Manufacturing

Manufacturing is a vital component of Wisconsin's economy and accounts for approximately 500,000 jobs. The emerging clean energy economy provides an opportunity for Wisconsin's manufacturers to provide the supplies and equipment necessary to produce the renewable energy of the future. **From wind energy component manufacturers in Northeastern Wisconsin to renewable fuel equipment manufacturing in Central Wisconsin, industries across the state are poised to diversify product lines and develop new products for emerging clean energy markets.** Governor Doyle is committed to seeing Wisconsin businesses and skilled workers capture 10 percent of these new green markets.

### Timber

Wisconsin's forest products industry is a leading provider of high wage jobs, with over 93,000 total jobs and wages in excess of \$3.5 billion. Wisconsin's 16 million acres of forests and timberland could serve as the fuel for the next generation of cleaner energies. While corn-based ethanol currently dominates the renewable fuel market, wood waste and forest materials are untapped sources of feedstock for cellulosic ethanol. Additionally, technologies are being developed to turn these materials into biogas suitable for energy generation. **By using sustainable forestry principles and maximizing the use of our forest residues we can open new markets for Wisconsin northwoods communities and businesses.**



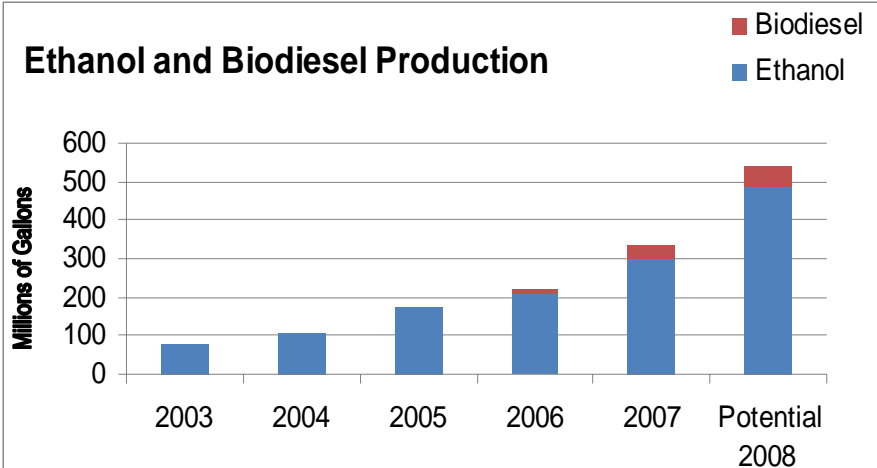
### Paper Industry

Governor Doyle is committed to ensuring the future of Wisconsin's paper industry by expanding product lines and helping pulp and paper mills turn waste into energy. Wisconsin has the largest fine paper industry in the country with 40,000 employees and it ships almost \$17 billion in products annually. **Wisconsin's paper mills can add bio-refineries, producing renewable fuels and power to strengthen and diversify the paper industry and increase Wisconsin's renewable energy production.**

### Ethanol Production

Wisconsin is currently the nation's 7<sup>th</sup> largest producer of ethanol, producing 400 million gallons per year, and supporting over 3500 jobs. **A United States Department of Agriculture (USDA) study estimates the renewable energy industry will create over 5 million jobs, mainly in rural areas.**

### Ethanol and Biodiesel Production



Source: Wisconsin Office of Energy Independence

### III. Improve Our Environment

By emphasizing efficiency and promoting cost-saving alternative fuels, Wisconsin citizens and businesses can improve air and water quality throughout the state.

#### *Improved Air Quality from Renewable Fuels*

An April 2007 U.S. Environmental Protection Agency (EPA) study shows greater ethanol use is one of the quickest and most effective ways to reduce CO<sub>2</sub> emissions from transportation, the U.S.'s single largest and fastest growing emissions sector. The study found that **ethanol has the potential to reduce greenhouse gas emissions by as much as 52 percent over petroleum-based fuels.** These emissions account not only for CO<sub>2</sub>, but also methane and nitrous oxide. The report also found moderate ethanol blends help reduce smog and soot pollution that plagues many areas of the state.

While conventional diesel fuel is a source of significant air pollution in Wisconsin, using biodiesel promotes cleaner air. Biodiesel:

- Reduces emissions of carbon monoxide and carbon dioxide;
- Contains fewer hazardous air pollutants that contribute to ozone and particulate matter formation; and
- Reduces tailpipe emissions of particulate matter.

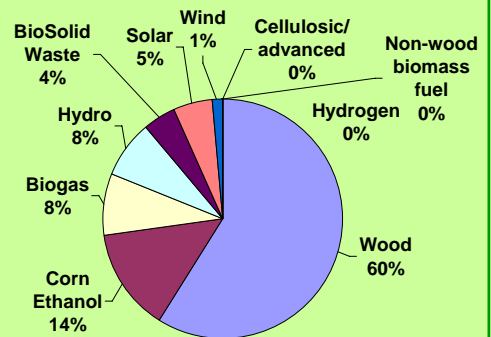
#### *Improved Air Quality from Renewable Power*

Renewable power has a substantially cleaner impact on the environment than conventional fossil fuels. Renewable energy requires no mining, drilling, or transportation of fuel, and does not generate radioactive or other hazardous or polluting waste. For example:

- It takes 500 times more water to produce one kilowatt-hour of electricity from coal than from wind power.
- **Zero greenhouse gases are emitted from wind or hydro generated power while power generated from fossil fuel generates an average of 1.5 lbs of greenhouse gases per KWh.**
- Sulfur dioxide emissions from wind or hydro generated power are zero while fossil fuel power generates .008 lbs per KWh on average.

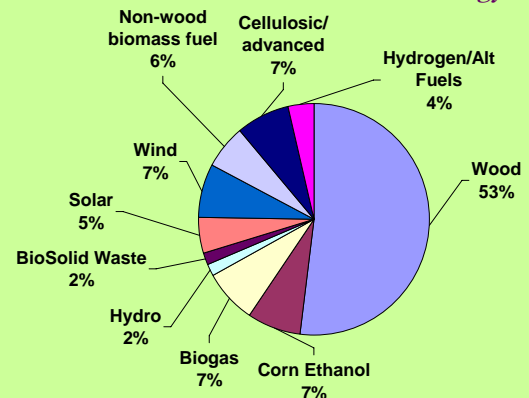
#### Wisconsin's Renewable Energy Portfolio

##### 2006



*By 2025, renewable energy will account for 25% of Wisconsin's energy use.*

##### 2025 Projection



## Areas of Investment: Business and Job Development



*The Wisconsin Energy Independence Fund, administered by the Department of Commerce, will accept applications for funding beginning April 1, 2008.*

### ***Wisconsin Energy Independence Fund***

Governor Doyle is launching a \$150 million grant and loan program to make Wisconsin a leader in renewable energy – exploring cutting-edge technologies that will transform energy waste into energy opportunity. Through the development and deployment of new discoveries and innovations, **Wisconsin will use its considerable natural resources and manufacturing expertise to develop new businesses focused on reducing our dependence on foreign oil.** This effort will leverage nearly one billion dollars in private investment and create new jobs for Wisconsin families on our farms, in our forests, in our research labs and for our manufacturers.

### ***Emerging Industry Skills Partnership***

This initiative, developed by Governor Doyle, is designed to ensure Wisconsin has the trained workers it needs to continue to be a leader in areas such as advanced manufacturing and in areas where the state is developing emerging industries, such as biotechnology and renewable energy. Grants totaling \$850,000 are providing industry, technical colleges, and workforce development boards with the ability to train people for good-paying jobs in these growing sectors of the economy. The jobs include laboratory technicians involved in biofuels processing and testing, and machinists to manufacture parts for wind energy generators.



### ***Technical College Grants***

Governor Doyle supports efforts to expand Wisconsin Technical College programs to include renewable energy and biofuels production curricula. These programs are essential to ensuring the clean energy economy has the skilled workforce necessary to grow.

### ***Biodiesel Production Tax Credit***

Beginning in 2009, the state will offer a tax credit equal to 10 cents per gallon for biodiesel fuel producers in Wisconsin that produce at least 2.5 million gallons of biodiesel per year.

### ***Ethanol and Biodiesel Fuel Pumps***

Governor Doyle is launching a new effort to encourage fueling stations to install new renewable fuel pumps, or to retrofit existing fuel pumps to accommodate renewable fuels, by offering a per-station tax credit. Each service station that installs or retrofits pumps that dispense fuel containing at least 85 percent ethanol or 20 percent biodiesel will be eligible for the tax credit.



### ***Soybean Crushing Facility***

Governor Doyle is providing \$4 million in grants for construction of the first soybean crushing facility in the state. This facility will have the capacity to process more than 20 million bushels of soybeans per year into soy oil. Soybeans are one of Wisconsin's largest crops, and more than 85 percent of biodiesel fuel is made from soybean-derived soy oil. Biodiesel is an alternative fuel that can run in most diesel engines and will reduce dependence on foreign oil. An in-state soybean crushing facility will allow biodiesel plants to use soy oil from Wisconsin, rather than importing it from out of state.

### ***Biomass Market Development***

Creating a stable supply of farm and forest materials within the state for use in the production of renewable energy will keep energy funds in Wisconsin, rather than sending our energy dollars to hostile foreign countries. **Biomass is our state's competitive advantage in renewable energy, and utilizing agriculture and forest waste will assist Wisconsin in meeting its alternative energy goals.** Under the Governor's leadership, his Administration will partner with loggers in northwest and farmers in southwest Wisconsin to develop farm and forest crops that can serve as a substitute for coal electricity generation and oil used for transportation fuels. In addition, the Department of Natural Resources will work to create healthy forest guidelines for harvesting woody biomass to generate fuels of the future.



### ***Biomass Commodity Exchange***

The Office of Energy Independence will oversee a feasibility study for the creation of a biomass commodity exchange to help match renewable energy demands with biomass supply. The study will investigate the possibility of creating a transparent market system for buying and selling biomass products and would also develop a model for oversight. If the study reveals that an exchange would be possible in Wisconsin, our state could be the first in the nation to have a biomass commodity exchange.

## Areas of Investment: Renewable Technology

### ***Great Lakes Bioenergy Center***

In June 2007, Governor Doyle announced that the UW-Madison received a \$125 million research grant from the U.S. Department of Energy to create the Great Lakes Bioenergy Research Center. The center will develop innovative solutions to meet the state's energy needs – from yielding more productive biomass to transforming renewable energy solutions into jobs for Wisconsin. Based at UW-Madison, the center will involve nearly 60 scientists and partner institutions from across the country.

### ***Great Lakes Wind Study***

Governor Doyle's Global Warming Task Force recommends that the state convene a study group to look at the technical and economic potential for developing wind energy on Lake Michigan and Lake Superior. The group, where appropriate, should work with other Great Lakes states. While land-based wind resources continue to provide the majority of renewable energy to Wisconsin, this state does not have land-based wind of the same quality as its neighbors to the west.

### ***Wind Siting Uniform Standards***

Governor Doyle supports the creation of uniform standards for the siting of large and small wind turbines. Uniformity in the standards and process will ensure equity to developers and all local communities, and will enable needed wind projects to be built safely in Wisconsin to support the state's aggressive renewable portfolio standard.



### ***School Renewable Energy Projects***

Governor Doyle signed legislation into law authorizing 14 Wisconsin school districts eligibility to obtain \$14 million in federal Clean Renewable Energy Bonds (CREBs). With these funds, schools will be able to install equipment generating up to 5 megawatts (MW) of renewable energy for their use, incorporate renewable energy into their curriculum as a way to teach earth science, mathematics, electrics, art, biology and political science, and develop teacher training through the National Education Foundation.

## Area of Investment: Energy Efficiency

A key to a more secure energy future is reducing Wisconsin's overall energy consumption. Wisconsin is home to some of the nation's leading manufacturers of energy efficiency technologies and products. These companies work to reduce the energy consumption of our homes, offices and businesses, improve the efficiency of small and large engines and manufacturing equipment, and improve the performance and efficiency of our nation's transportation fuels.

Energy efficient homes, transit, and businesses will dramatically lower costs and Wisconsin's impact on the environment. Wisconsin has several initiatives to provide resources for residents and businesses to become more energy efficient through weatherization and other cost-effective technologies.

### *State Energy Efficiency Program*

Governor Doyle has been a strong advocate for improving our state's energy efficiency program, Focus on Energy. Wisconsin utilities are now required to contribute 1.25 percent of their annual operating revenue for efficiency and renewable energy programs. This initiative will generate \$94 million of revenue over 18 months for investment in energy efficiency projects that improve the competitiveness of Wisconsin businesses and industries, and help consumers control their energy expenditures.

The Focus on Energy program is one of the leading energy efficiency programs in the United States. **In 2007, Focus on Energy helped over 12,800 Wisconsin businesses reduce their energy consumption and generate over \$22.6 million in annual energy savings. Focus on Energy assisted 214,800 Wisconsin families in finding ways to make their homes more energy efficient, thereby saving them over \$9.9 million in annual energy costs.**



### *Mass Transit*

A growing clean energy economy requires a strong and energy efficient multi-modal transportation system that connects people to jobs and permits the safe and efficient movement of goods and people across the state. Rail and mass transit are important components of the state's efforts to improve the energy efficiency of the transportation sector. In the state's future transportation system, these modes of transit will likely serve even larger roles in efficiently getting people to and from their place of work while conserving energy. The Governor provided an increase of nearly \$13 million to support mass transit in our cities and supports important inter-city transit initiatives and services in southeast Wisconsin. Governor Doyle is also committed to supporting efforts to create regional transit authorities.

### ***Research, Development and Manufacturing***

Wisconsin companies are:

- Working to develop new low-carbon liquid fuels from bio-chemicals and improve the efficiency of ethanol and biodiesel production.
- Piloting the next generation of hybrid batteries needed for plug-in hybrid vehicles (PHEVs) of the future.
- Producing highly energy-efficient thermal management systems and components used in light, medium and heavy-duty vehicles, HVAC (heating, ventilation and air conditioning) equipment, industrial equipment, refrigeration systems, fuel cells and electronics.
- Manufacturing high intensity fluorescent lighting systems that drastically reduce electricity consumption and reduce greenhouse gas emissions.



*Governor Doyle fills up a flex fuel state vehicle.*

### ***Automotive Industry***

Wisconsin is home to facilities that produce some of the most sought-after American-made automobiles and motorcycles. Wisconsin manufacturers are striving to produce more efficient engines and vehicles. Hybrid vehicles will become an increasingly important part of Wisconsin's strategy for energy independence. Governor Doyle is pleased that General Motors, which has a plant in Janesville, will introduce a second-generation GM Hybrid System with a new, more powerful lithium-ion battery.

Wisconsin is also a leader in the next generation of power train and fuel-efficient V-6 engines to be produced by Chrysler. The "Phoenix" generation of engines are slated to be produced by Chrysler in Kenosha beginning in January 2011.

## Energy Independent Communities

The Wisconsin Energy Independent Community (WEIC) Partnership works through voluntary agreements between the Office of Energy Independence and individual communities. The program is an innovative partnership that is the **first of its kind in the nation**, and it is an integral piece to advancing energy independence in our state.

Communities will join the Governor's efforts by increasing their share of renewable fuels to meet the "25 by 25" goals, reducing consumption of fossil fuels, emphasizing building efficiency in their community, and undergoing a comprehensive energy audit.

This partnership embraces the approaches and solutions that communities are currently exploring, and it will foster innovation. Energy Independent Communities will design strategies to capitalize on their unique assets and diverse resources.

Many communities have expressed interest in this program, and the Office of Energy Independence will continue working with towns and cities across the state to move forward this effort.



### Benefits for Energy Independent Communities

- Access to state and federal funds
- Technical assistance from state and federal agencies, the private sector & foundations
- Savings for local operating budget through energy efficiency

Mayors, county executives and supervisors, village presidents and town board chairs view the partnership as a way to help provide additional resources as they plan for energy security and climate stewardship opportunities. A partnership with the state will help access existing programs like Focus on Energy, planning services of UW Extension and utilities, and leverage funds from community and other foundations. WEIC partnerships will position Wisconsin to be the nation's first pilot program for the new Energy Efficiency and Community Block Grant program in the US Department of Energy.

## Appendix: Renewable Energy & Bioeconomy Dictionary

**What is biomass?**

Biomass is organic matter (plant material, vegetation, agriculture waste, forestry waste) used as a fuel or source of energy. Use of biomass as an energy source results in little net production of carbon dioxide because the CO<sub>2</sub> generated during combustion of plant material equals the CO<sub>2</sub> consumed during the lifecycle of the plant.

**What is a feedstock?**

Feedstocks are any material which is converted to another form or product. It is the raw material required for an industrial purpose. Biomass feedstocks can include everything from soybeans and corn to prairie grasses and trees.

**What are biofuels?**

Biofuels are liquid, solid, or gaseous fuels produced by the conversion of biomass. Examples include bio-ethanol from corn or sugarcane; bio-gas from anaerobic (in the absence of air) decomposition of wastes; and biodiesel from materials such as soybean oil.

**What are energy crops?**

Energy crops are crops grown specifically for their value as a fuel. Examples of energy crops include corn, sugarcane, poplar trees and switchgrass.

**What is ethanol?**

Ethanol is a liquid fuel that is produced by the fermentation of plant sugars. Currently, one bushel of field corn will yield approximately 2.8 gallons of fuel ethanol.

**What is biodiesel?**

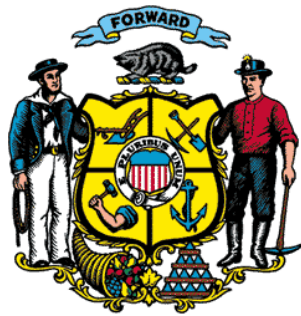
Biodiesel is an alternative to petroleum diesel that is made from vegetable oils and animal fats through a process called transesterification. Biodiesel can be used as a pure fuel or blended with petroleum and can be used in any diesel engine with little or no engine modifications.

**What is cellulosic ethanol?**

New technological advancements are leading to the production of cellulosic ethanol. Even though it is chemically identical to the ethanol made from corn or soybeans, cellulosic ethanol has a net energy content nearly three times higher, a lower net level of greenhouse gases and can be made from many different kinds of cellulosic biomass feedstocks such as corn stover, switchgrass, prairie grasses and wood materials.

**What is a biorefinery?**

A biorefinery would work like a petrochemical refinery, producing transportation fuels and high-value chemicals, but would use plant matter as the raw material instead of petroleum. The plant matter would be any number of things, including corn, wheat, barley, switchgrass, crop residues or waste wood.



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